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ABSTRACT

The Strategic Training of Employees Model (STEM) is a comprehensive training framework that balances the need for training against the constraints existing within organizations. The STEM is based on advances in economic and educational research. The following are among the theories that lay at the STEM's foundation: reinforcement theory; social learning theory; goal-setting theory; need theories (including those of Maslow, Alderfer, Herzberg, and McClelland); expectancy theory; and adult learning theory (andragogy). The STEM links employee training with the organization's strategic objectives through analyzing the macro-organizational and micro-organizational levels of training. The macro-organizational training level begins by incorporating one or more of the following categories of business strategies (as determined by senior management) into the training process: concentration, internal growth, external growth, and disinvestment. A task analysis is then conducted to evaluate which jobs, tasks, and abilities are needed to accomplish the strategies. Next, the focus shifts to the micro-organizational level, at which point the target audience and content of training are identified. The following items (termed the four P's) provide a framework determining target audience and content; place (location factors); product (content of the training program); promotion (communicating information about training programs); and price (cost considerations). The final stage of the model consists of implementation, feedback, and evaluation. (Contains 29 references.) (MN)

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The Strategic Training of Employees Model (STEM): The Four P's Approach

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Introduction

> In the early 1980s U.S. Steel (now USX) underwent massive downsizing and invested more than $1 billion to upgrade and computerize its production processes. For the new technology to pay off, worker skills had to be upgraded. But as part of its restructuring, the company had eliminated an apprenticeship program that provided in-depth training in a number of crafts. Now the company needed a training program that would cut across craft lines. USX found that an investment in physical resources often requires an investment in human resources (Gomez-Mejia, Balkin and Cardy, 1995).

The extent to which organizations will support employee training and development certainly varies and that variability leads to a most interesting question- why do some organizations seem to value training more than others do? Encapsulated within that question is the realization that organizational constraints will limit the amount of training regardless of how important the training might be.

In this article, the Strategic Training of Employees Model (STEM) is developed. STEM advances the literature by providing human resource practitioners with a comprehensive framework (the Four P's Approach) that balances the need for training against the constraints that exist within an organization. An assumption of STEM is that an organization can be described as an entity that consists of three components [1] people [2] a goal(s) or purpose(s) and [3] structure (Robbin, 1998). Of the three components, the people factor is the most important because without human beings the other two components (and the organization- itself) can not exist. Human beings form the structure of an organization, set the goal(s) or standard(s) and any product value that an organization can bring to the marketplace is fundamentally dependent upon the abilities of the employees at all levels of the organization. As the USX example illustrated, in the final analysis, it is the decisions and capabilities of human beings (management and non-managerial personnel) that will ultimately determine the organizational results.

Historical Perspective

When establishing any kind of training program it is important to determine the potential content. However, because of organizational constraints, the potential content normally does not comprise the usable content. In other words, the usable content tends to be less than the potential content because of constraints. Constraints can include time restrictions, personnel and budgetary limitations, lack of training facilities, materials or equipment, and the attitude of senior management towards training. The relationship between potential and usable training content can be expressed in the following equation (Finch, 1989, p. 161).

The Training Content Decision-Making Equation

$$UC = PC - C$$

Where: UC = usable content, PC = potential content, C = constraints

Thus any training program must balance the need to provide employees with the proper level of training weighted against organizational constraints. A tilt one way or the other could have detrimental repercussions upon the organization. Too much training is an unnecessary waste of resources. Too little training could result in an organization being unable to achieve a competitive position in the marketplace. Any training model that does not reflect the delicate balance between training content set against a backdrop of organizational constraints fails to recognize the "real world" organizational environment and would therefore be a meaningless tool for human resources practitioners. The necessity of developing such a model is important because despite American companies spending more than $50 billion per year on training the effectiveness of that training is questionable as compared to many other countries (Hicks, 2000 and Idhammar, 1997). Much of the training in the United States is commonly referred to as the "follow Joe" type. This means new

employees are teamed with experienced employees, and the new employees are expected to learn on the job. However, this method does not always ensure that all the necessary information is passed from the experienced employee to the new one. For instance, lets suppose that Joe an experienced worker is responsible for teaching Mike, a new employee. First of all, Joe might only possess a certain percentage of the knowledge he should be aware of. In addition, Joe might not teach Mike everything he knows, keeping some skills to himself because of pride and (or) job security. However, even if Joe teaches Mike everything that he knows, Mike might not be able to remember all of it (Idhammar, 1997).

To improve the effectiveness of the training function a systematic process needs to be established that provides a framework for evaluating training goals and techniques subject to organizational constraints.

Literature Review

As background for this paper, economic research relating to the development of human capital as well as the literature pertaining to the learning process with an emphasis upon adult learning and the implications for organizational training will be cited.

Economic Literature and Human Capital

In his seminal article, Gary Becker (1962) laid the foundation for the study of human capital acquisition when he distinguished between "general human capital" and "specific human capital." General human capital has multiple uses and is therefore portable while specific human capital is useful in a narrow line of work and therefore has limited portability (Loewenstein and Spletzer 1999, Bassi 1994). Accordingly, any "completely general training" is an investment in human capital that increases an employee's overall productivity and could be transferred to any

employment situation while "completely specific training" only increases worker productivity at the employer where the training occurred. Becker concluded that within a perfectly competitive market any general human capital formulation will be financed by the individual while any specific human capital acquisition will be shared by individuals and firms (Bassi 1994).

Following the publication of Becker's work most of the economic research regarding workplace analysis examined physical capital issues; however recently, several researchers have begun investigating various topics relating to human capital development. Elbaum (1990) focussed upon market imperfections such as asymmetric information, pay schedule issues and risk aversion as possible sources that might reduce the desire to obtain additional general education training from the worker's perspective. Parson (1990) suggested that the legal system has made apprenticeship-type contracts difficult to enforce and that multiemployer training cooperatives which provide workers with industry specific skills may fail to develop due to concerns about antitrust issues. Both of these factors could result in sub-optimal investment levels. Other avenues of research included the findings by Lynch (1991) and (Loewenstein and Spletzer 1997) that individuals with on-the-job training are less likely to leave their employer as compared to individuals with off-the-job training. Additionally, Lynch (1992) concluded that on-the-job training seems to increase wages at the current employer but not at future employers, whereas the opposite appears to be true involving off-the-job training. Similarly, (Loewenstein and Spletzer 1998a) also found that training tends to increase future wages for employees who are willing to switch employers. In 1996, Bishop and Kang suggested that the existence of a liquidity constraint on the part of the worker could lead the employer and employee to share the costs and benefits associated with general training. Loewenstein and Spletzer (1998a) proposed that contract enforcement considerations could lead an employer to share the costs and benefits of completely general training (Loewenstein and

Spletzer 1999). In sum, this line of economic research serves as a valuable reminder of the tug and war between providing employee training and the associated costs. Most organizations (with the exception of academically oriented entities such as schools, colleges, universities and so forth) do not exist for the sole purpose of educating their employees so a managerial decision must be made regarding the level of training that will be provided. This dilemma once again focuses attention upon the concepts of potential and usable content as outlined by Finch (1989) in the "Training Content Decision-Making Equation."

Learning and Human Capabilities

Learning is defined as a relatively permanent change in human capabilities that is not a result of growth processes. These capabilities are related to specific learning outcomes (verbal information, intellectual skills, motor skills, attitudes and cognitive strategies). Verbal information includes names or labels, facts, and bodies of knowledge. Verbal knowledge relates to specialized information that employees need in their jobs. Intellectual skills consist of understanding concepts and rules. These concepts and rules are critical to solve problems, serve customers, and create products. Motor skills pertain to the coordination of physical movements. Attitudes are a combination of beliefs and feelings that predispose a person to behave in a certain way. Attitudes include a cognitive component (beliefs), an affective component (feeling), and an intentional component (the way a person intends to behave in regard to the subject of the attitude). Important work-related attitudes include job satisfaction, commitment to the organization, and job involvement. Finally, cognitive strategies regulate the processes of learning. They relate to the learner's decision regarding what information to attend (i.e. pay attention to), how to remember, and how to solve problems (Noe 1999).

Learning Theories

Several learning theories can be utilized to provide a foundation for understanding how a trainee is motivated to learn.

[1] Reinforcement theory emphasizes that people are motivated to perform or avoid certain behaviors because of past outcomes that have resulted from those behaviors. There are several processes in reinforcement theory. Positive reinforcement is a pleasurable outcome resulting from a behavior. Negative reinforcement is the removal of an unpleasant outcome. Eliminating any reinforcement that is maintaining a behavior is called extinction. Punishment is presenting an unpleasant outcome after a behavior. From a training perspective, reinforcement theory suggests that for learners to acquire knowledge, change behavior, or modify skills, the trainer needs to identify what outcomes the learner perceives as being positive (or negative). Trainers then need to link these outcomes to learners acquiring knowledge, skills, or changing behaviors (Noe 1999, Robbins 1998).

[2] Social learning theory suggests that learners first watch others who act as models. Next, they develop a mental picture of the behavior and its consequences. Finally, they try the behavior themselves. If positive consequences result, the learner repeats the behavior; if negative consequences occur, no repetition occurs. In a training scenario, a group of trainees can be presented with models of effective behaviors, such as serving customers or performing managerial analyses as well as the relationship between these desirable behaviors and consequences, such as praise, promotions, or customer satisfaction. Trainees then rehearse the behaviors and consequences, building cognitive maps that intensify the links and set the stage for future behaviors. The learning impact occurs when the subject tries the behavior and experiences a positive result (Gordon 1996).

[3] Goal setting theory implies that the establishing and committing to specific and challenging goals can influence an individual's behavior. Once the goals have been established the individual then directs his (or her) energy and attention towards obtaining the goals. From a training perspective, goal setting could be utilized to identify the specific outcomes that should be achieved from the training (Hellriegel, Slocum and Woodman 1995).

[4] Need Theories (Maslow's Hierarchy of Needs, Alderfer's ERG Theory, Herzberg's Dual-Structure Theory and David McClelland's Need Theory) assume that need deficiencies cause behavior. A need is a deficiency that an individual is experiencing at any point in time. Needs theories suggest that to motivate learning, trainers should identify trainee's needs and communicate how training program content relates to fulfilling those needs (Noe 1999, Moorhead and Griffin 1995).

[5] Expectancy theory implies that an individual's behavior is a function of three factors (expectancy, instrumentality, and valence). The expectancy factor refers to an individual's belief that effort will lead to a particular performance level and that the performance level is associated with a particular outcome (instrumentality factor) and that the outcome is valued by the individual (valence factor). From a training perspective, expectancy theory suggests that learning is most likely to occur when employees believe they can learn the content of the program (expectancy), learning is linked to outcome such as better job performance, a salary increase, or peer recognition (instrumentality) and employees value the outcomes (Noe 1999).

Adult Learning Theory (Andragogy) and Implications for Workplace Training

Traditionally, pedagogy dominated the literature in education. More recently, educational psychologists recognized the need to focus upon adult learning and developed the theory of adult learning, andragogy. Malcolm Knowles (1990) is most frequently associated with adult learning

theory. The adult learning model is based upon several assumptions. [1] Adults have the need to know why they are learning. [2] Adults have a need to be self-directed. [3] Adults bring more work-related experiences into the learning situation. [4] Adults enter into a learning experience with a problem-centered approach to learning and finally, [5] adults are motivated to learn by both extrinsic and intrinsic motivators. Some implications regarding adult learning theory for workplace training are summarized below (Noe 1999).

- Employees learn best when they understand the objective of the training program. The objective refers to the purpose and expected outcome of training activities. The training objective should be comprised of three components. An explanation of what the employee is expected to do (performance). A statement of the quality or level of performance that is acceptable (criterion) and finally, a declaration of the conditions under which the trainee is expected to perform the desired outcome (conditions).
- Employees tend to learn better when the training is linked to their current job experiences for this enhances the meaningfulness of the training. Recent research suggests that providing trainees with opportunities to choose their practice strategy and other characteristics of the learning situation can further enhance the training experience.
- Employees learn best when they have the opportunity to practice and that the training must be related to the learning objectives. In addition, the trainer should identify what the trainees will be doing when practicing the objectives (performance), the criteria for attainment of the objective, and the conditions under which the practice session(s) will be conducted.
- Employees need feedback and to be effective the feedback should focus on specific behaviors and be provided as soon as possible after the trainee's behavior.

- Employees learn by observing and imitating the actions of a model. For the model to be effective, the desired behaviors or skills need to be clearly specified and the model should have characteristics (such as age or position) similar to the target audience. After observing the model, trainees should have the opportunity to reproduce the skills and behaviors shown by the model. Communities of practice refer to groups of employees who work together, learn from each other, and develop a common understanding of how to get work accomplished.
- Employees need the training program to be properly coordinated and arranged. Good coordination ensures that trainees are not distracted by events (such as an uncomfortable room or poorly organized materials) that could interfere with learning.

The linking of adult learning theory with the strategic objectives of the organization is referred to as high-leverage training. High-leverage training helps to create a corporate culture in which continuous learning is encouraged. Continuous learning requires employees to understand the entire work system including the relationships among their jobs, their work units, and the company. Employees are expected to acquire new skills and knowledge, apply them on the job, and share this information with other employees (Noe 1999).

The Foundations of the Strategic Training of Employees Model (STEM)

The concept of high-leverage training is embedded within the framework of STEM for the model is built upon the realization that organizations have limited resources (capital, financial, human) and those resources must be allocated in an efficient manner. STEM directly links employee training and career development with the strategic objectives set by management so that the focus of any workplace training will be centered upon the obtainment of organizational goals. It

is this fundamental bond that defines the content direction for the entire training development process. Specifically, the usable content can be defined by modifying Finch's earlier equation.

The Strategic Training Decision-Making Equation

$$USC = PC - NSC - C$$

Where USC = Usable Strategic Content, PC = Potential Content, NSC = Non Strategic Content, C = Constraints

Usable strategic training content can alternatively be identified as employee training plus career development associated with obtaining strategic organizational goals.

$$USC = SET + SCD$$

Where USC = Usable Strategic Content, SET = Strategic Employee Training, SCD = Strategic Career Development

Thus, the strategic decision-making equation can be rewritten as

$$SET + SCD = PC - NSC - C$$

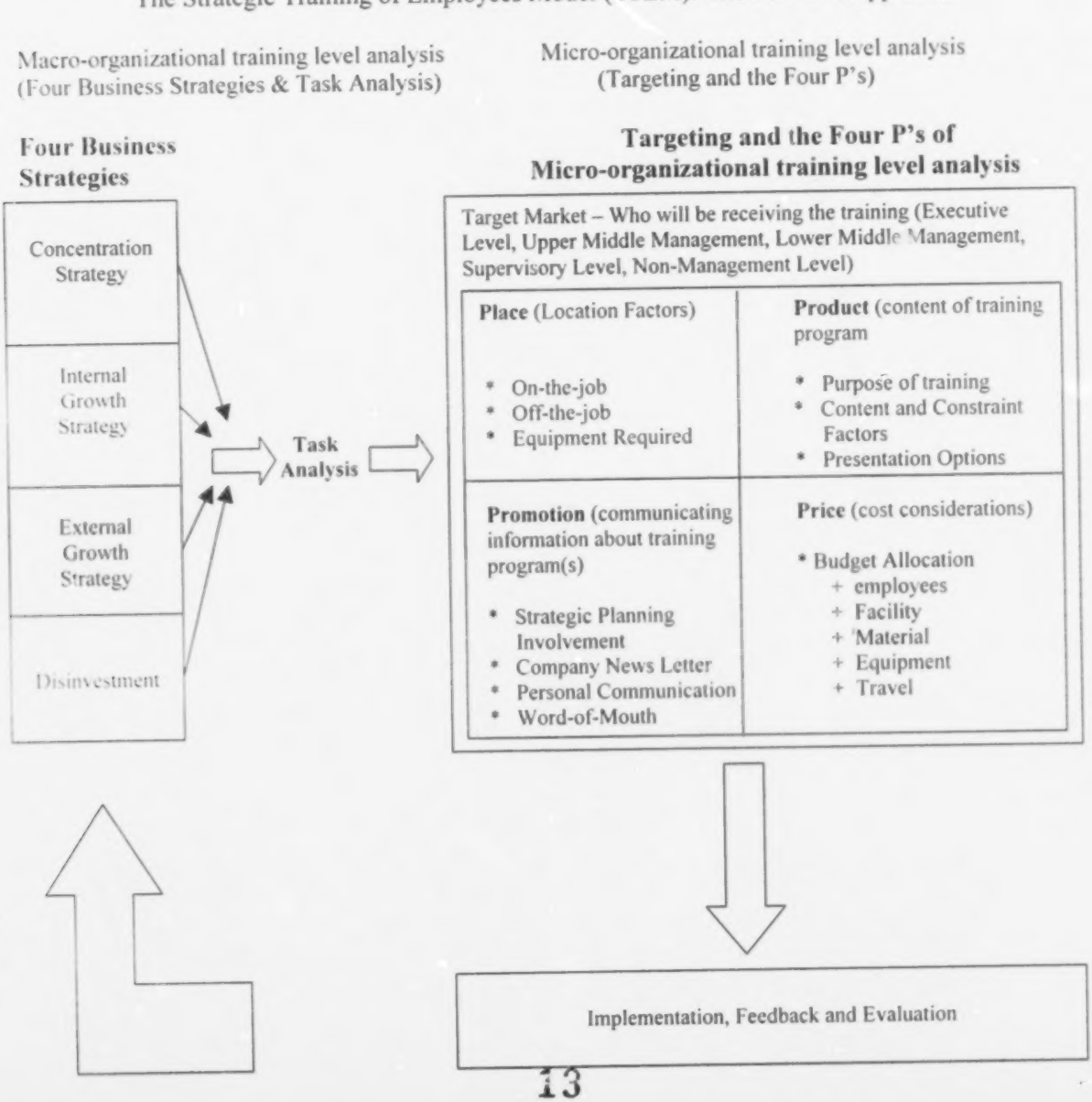
Where SET = Strategic Employee Training, SCD = Strategic Career Development, PC = Potential Content, NSC = Non-Strategic Content, C = Constraints

STEM directs the flow of the training process by focussing upon the strategic objectives of the organization and then designing specific training and career development activities that relate to obtaining those strategic goals. A by-product of utilizing this approach is that training dollars will also be directed towards achieving the strategic objectives of the organization. By effectively and efficiently allocating training content (as well as dollars) an organization should be able to improve the value of the product(s) that it brings to the marketplace.

To accomplish the effective and efficient allocation of training content and dollars the training function is analyzed at two levels. The first level, is the macro-organizational training level while the second level is referred to as the micro-organizational training level. At the macro level,

the focus is upon identifying the strategic objective of the organization [or business unit(s)] as well as a task analysis. At the micro level, specific training content is developed that supports the outcome(s) of the analysis that was conducted at the macro level. Following macro and micro level analysis, training programs are then implemented. Once implementation has occurred the next step is to obtain feedback and evaluate the quality of the training provided.

The Strategic Training of Employees Model (STEM): The Four P's Approach


The Strategic Training of Employees Model (STEM): The Four P's Approach
Macro-organizational training level analysis
(Four Business Strategies & Task Analysis)
Micro-organizational training level analysis
(Targeting and the Four P's)
Four Business Strategies
Concentration Strategy
Internal Growth Strategy
External Growth Strategy
Disinvestment
Task Analysis
Targeting and the Four P's of Micro-organizational training level analysis
Target Market – Who will be receiving the training (Executive Level, Upper Middle Management, Lower Middle Management, Supervisory Level, Non-Management Level)
Place (Location Factors)
* On-the-job
* Off-the-job
* Equipment Required
Product (content of training program
* Purpose of training
* Content and Constraint Factors
* Presentation Options
Promotion (communicating information about training program(s)
* Strategic Planning Involvement
* Company News Letter
* Personal Communication
* Word-of-Mouth
Price (cost considerations)
* Budget Allocation
+ employees
+ Facility
+ Material
+ Equipment
+ Travel
Implementation, Feedback and Evaluation

Macro-Organizational Training Level Analysis

The macro-organizational training level begins by incorporating the business strategy (or strategies) that have been formulated by senior management into the training process. Business strategies have been classified into four general categories (1) concentration, (2) internal growth, (3) external growth and (4) disinvestment (Noe, 1999). A concentration strategy focuses on increasing market share, reducing costs or creating and maintaining a market niche for products and services. An internal growth strategy focuses on new markets and product development, innovation and joint ventures. An external growth strategy (acquisitions) emphasizes acquiring vendors and suppliers or buying businesses that allows the organization to expand into new markets. A disinvestment strategy stresses liquidation and divestiture of businesses. These business strategies are not necessarily mutually exclusive and once management has determined the course of action that the organization will pursue the training function should concentrate on developing employee capabilities that will assist in accomplishing the objectives set by management. Given the business strategy, a task analysis should then be conducted to evaluate what jobs, tasks and abilities are necessary to accomplish that strategy. A task analysis generally consists of four steps. The first is the determination of the jobs to be analyzed. Second, a preliminary list of the tasks involved to perform a job is established. Third, the preliminary task list should be validated or confirmed. Finally, the knowledge, skills, and abilities that are necessary to perform the job are identified.

Micro-organizational Training Level Analysis

After the task analysis is completed, the focus of the training function is shifted towards developing specific training programs that are based upon the task analysis. At this micro-organizational level the training process includes identifying who needs to be trained (targeting)

and what should the training content consist of (the Four P's of micro-organizational training level analysis). The task analysis would have resulted in a list of specific jobs as well as the tasks and the skills required to perform those jobs. From that information, the training function becomes one of targeting specific employees for training and designing training content that will assist those employees in performing their jobs for the ultimate purpose of achieving the strategic objectives established by management. When determining specific training content a four P's approach can be utilized.

The Four P's of Micro-organizational Training Level Analysis

A four P's approach (Place, Product, Promotion, and Price) provides a framework for guiding training content decisions. The four P's approach is a managerial tool utilized in the field of marketing.

Place

"Place" analysis refers to location decisions such as an on-the-job (OJT) or off-the-job training as well as equipment and other facilities criteria. OJT basically involves the trainee working in the actual work setting usually under the supervision of an experienced worker, supervisor or trainer. Examples of OJT programs include job rotation, apprenticeships and internships. An alternative to OJT is off-the-job training. Common examples of off-the-job training are formal courses, simulations and role playing exercises in a classroom setting. In a classroom situation, some of the facility decisions include evaluating a room in terms of noise level, colors, room structure, lighting, wall and floor coverings, type of chairs, glare, ceiling height, electrical outlets and acoustics. In addition, the seating arrangement should also be considered. Different types of seating arrangements include a fan-type setting, classroom-type setting, conference-type setting and a horseshoe arrangement.

Equipment decisions focus upon any multimedia learning tools that may be required including audiovisual or computer based and possibly intelligent tutoring or expert systems equipment. In sum, a proper training location is comfortable, accessible, quite, private, free from interruptions, has sufficient space and equipment to insure that a quality training environment is created (Noe, 1999).

Product

Product analysis focuses upon issues such as what is the purpose of the training? How should the training be presented? What organizational constraints limit the amount of training that can be provided?

In terms of the purpose of the training, two factors need to be considered. The first involves the determination of whether the reason for the training is training or career development? Training typically provides employees with specific skills or helping to correct deficiencies in their performance while development is an effort to provide employees with the abilities that the organization will need in the future (Gomez-Mejia, Balkin and Cardy, 1995). Besides distinguishing between training and career development, the second factor relating to the purpose of the training is a clear understanding of what type of skills is the training attempting to develop? Skill development could include improving basic literacy, technological know-how, interpersonal communication or problem solving abilities (Robbins, 1995). Thus as a specific training program is being designed the purpose behind the training needs to be reflected in the content. For example, if the purpose is career development then several training activities are applicable such as mentoring, coaching, job rotation and tuition assistance programs (Gomez-Mejia, Balkin and Cardy, 1995).

Also associated with content decisions is the determination of what methods should be utilized to present the content. The following table depicts the percentage of companies utilizing various training methodologies.

Training Methodology	Percentage of Companies using the Methodology
Classroom Training	94%
Video	74%
Audiovisual	56%
Role Play	52%
Case Study	38%
Computer-Based Training Using CD-ROM	36%
Games	28%
Computer-Based Training Using Intranet	21%
Adventure Learning	11%
Computer-Based Training Using Internet	10%
Virtual Reality	3%

(Noe, 1999, p. 163)

Besides determining methodologies an overriding issue regarding training content is the "organizational reality" illustrated by the strategic decision-making equation. Any training program will be subject to organizational constraints and those restrictions will impact the length and breath of the content. By tying training activities into the strategic management process some organizational constraints might be lessened because the training function becomes an intrigue part of the planning system established to obtain the goals set by management.

One final product consideration involves the determination of whether the training activity should be provided by an outside source. If a particular training activity can be provided by an outside vendor at a cheaper cost while insuring product quality than that training activity should be subcontracted.

Promotion

The main objective of the promotion element should be to build a relationship of trust between the training area and other departments within the organization so that the training function will be supported and viewed as a valuable asset to the organization. The level of management support for training can range from low support which means that managers generally accept training and allow employees to attend training to high support where managers actually participate in the training process as a trainer (Noe, 1999).

The most effective method of promoting the training function is for the HR department to become more strategic in scope and improve its overall image (HR Focus Survey, 2001). Besides becoming more involved in the strategic planning process other promotional avenues include utilizing the company news letter to report training related events and having administrators in the training area as well as the trainers visit managers throughout the organization to promote the benefits of training. Finally, the best form of promotion is positive word-of-mouth communication among employees, which is only generated by providing a quality training experience.

Price

Price analysis focuses upon budgetary considerations. Budgetary analysis begins with identifying the specific costs associated with developing a training activity. Traditionally, seven cost sources have been utilized. Those cost sources include: program development or purchase, instructional materials, equipment and hardware, facilities, travel and lodging, salary of trainer and support staff and finally lost of productivity while trainees attend the program or cost of temporary employees who replace the trainees while they are at training (Noe, 1999). With these cost sources serving as the base an aggregate annual training budget can be determined by identifying each of

these costs for a specific training activity and then multiplying the total cost of each training activity by the number of training sessions forecasted for the year.

Once costs have been determined those figures must be weighted against the benefits received from the training. A number of techniques are helpful to identify the benefits of training including the reviewing of the technical, academic or practitioner literature that summarizes the benefits that have been shown to relate to a specific training program. Additionally, pilot training programs can be conducted to assess the value of the training or observing the on-the-job performance of the employees after they have received the training can also serve as an assessment tool (Noe. 1999). As with any cost-benefit analysis, if the training benefits exceed the cost than the training activity is a value resource for the organization.

Implementation, Feedback and Evaluation

If the benefits of a training program exceed its costs than the program should be implemented. Following implementation, feedback will need to be received and an evaluation process should be conducted to insure that the quality of the program does not diminish. As long as benefits exceed costs the training program should continue to be offered.

Suggestions for Future Research and the Conclusion

From this initial presentation of STEM a range of future research possibilities can be developed. First, the "tug of war" relationship between recognizing the importance of training and the actual providing of the training requires additional exploration. This issue focuses upon the difference between potential strategic content and usable strategic content and why management "talks a good game" about the need for training but in many cases will not support a thorough training process (remember the USX example). Second, a specific training activity that is based on

the Four P's could be designed and then employee performance prior to and after receiving training can be compared to assess the value of the STEM approach. Third, since STEM links training activities to the strategic objectives established by management the various operational goals that flow from the strategic planning process should be achieved in a more effective and efficient manner resulting in a positive impact upon the overall financial measurements of the organization. To test this outcome, financial measurements such as earnings per share, sales volume, return on equity, stock price and so forth could be compared prior to and after implementing the STEM approach. Other research possibilities could include (1) surveying employee opinions regarding the STEM approach. (2) Developing additional criteria for each of the four P's. (3) Utilizing case studies to evaluate the impact of the STEM approach upon specific organizations and (or) industries. (4) Studying the effect of the STEM approach upon employee motivation at all levels within the organization. (5) Further refining the model in terms of how the STEM approach can be utilized to develop specific training activities for employees at all levels within the organization (upper management, middle management, supervisory and non-managerial personnel). (6) How diversity and pre-training differences can impact the STEM approach? (7) How on-line and other computer technologies can influence the STEM approach?

In conclusion, employee capabilities and the strategic objectives that can be obtained are bound together in a relationship that will ultimately determine the competitiveness that can be achieved by an organization. By utilizing STEM, an organization can achieve its strategic objectives in a cost efficient manner while also providing a quality training process that nourishes the employee skills and abilities that must be developed in order for an organization to flourish in today's global economy.

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